DATE: 24 August 1984 SAMPLE:
CRUISE ID: SO 33 70 GTV TV Grab
LOC: VIII
AREA: F

	time (GMT)	LAT (N)	LON (W)	water depth (m)	wire o
ON BOTTOM =	1949	20°10.30	170°36.93		
OFF BOTTOM =	2327	20°12.99	170°38.44		

RECOVERY WEIGHT: ≤0.1 kg

CRUST THICKNESS: 2 mm / 2-3 pebbles of crust

SUBSTRATE: / phosphorite, basalt

COMMENTS:

Very small recovery

70 GTV

Sample Description

Cruise I.D: S033

Sample I.D: Sta: 70 GTV

Location: Mid-Pac M (Area F)

Size: _____ Weight: _____

Mn crust thickness:

Total: min: _____ max: _____ ave: _____

Inner crust: min: _____ max: _____ ave: _____

Outer crust: min: _____ max: _____ ave: _____

Surface texture: _____

Internal structure: _____

layered: _____
laminated: _____
massive: _____
porous: _____
dendritic: _____
other: _____

Mineralogy (XRD): _____

Associated alteration, phosphorite, or hydrothermal deposits: _____

Substratum:

Rock type: _____

Description: _____

Mineralogy (XRD): _____

Analyses and subsamples:

analysis:	analyst:

	1	2
Rock Type:	Basalt, ~~Volcanogenic~~ ~~Breccia (glassy)~~ Hyaloclastite	Tuffaceous(?) Phosphorite
Color:	Moderate brown (5YR 3/4) (matrix) & Grayish orange (10YR 7/4) (cement)	yellowish-gray (5Y 7/2)
Texture:	Clastic	granular
Matrix:	basaltic glass fragments ±60%	foraminiferal tests (phosphorized, mostly obliterated) volcanic ash(?) (smectitized)
Cement:	phosphorite (francolite ?) ±40%	→ do, some "nontronite" component(?)
Average grain size:	± 2 mm (varies greatly) (range: medium fine sand — coarse gravel)	— not determined —
" grain shape:	angular	— not determined —
Sorting:	very poorly sorted	well-sorted (?)
Porosity:	80± %	±15 %
Permeability:	— do —	±12 %
Alteration:	Complete(?) (oxidation, hydration, zeolitization, smectitization, phosphorization of calcareous ooze cement),	Complete (phosphorization of $CaCO_3$ component, smectitization (?) of ash(?) component)
Remarks:	Small fragment (pebble size) of crust-covered basaltic glass breccia; loosely, weakly cemented by zeolites and phosphorite with much open space; infiltration with dendritic manganese oxide (todorokite ?); contains fragments reminiscent of 64 DK1 in which scoriaceous amygdaloidal basalt grades outward into amygdaloidal altered glass (palagonite ?) (some origin for this breccia ?); serves as substrate for ± 2 mm-thick knobby, wasty ferromanganese encrustation deposit	a few gravel-to-pebble-size fragments of fairly-well-indurated phosphorite, because of color, texture, and opacity, may have a volcanic ash component totally altered to nontronite(?); penetrated by fractures from which todorokite(?) dendrites penetrate into the phosphorite ± 1 mm; also such deposits seen along fracture faces along with brown $Fe(OH)_3$; serves as substrate for ± 2 mm-thick ~~arborescent~~ ferromanganese oxide deposits.